

(19)
(12)

(KR)
(A)

(51) . Int. Cl.⁷
C07D 205/08

(11)
(43)

10-2005-0008835
2005 01 21

(21)	10-2004-7020643		
(22)	2004 12 17		
	2004 12 17		
(86)	PCT/EP2003/005816	(87)	WO 2004/000805
(86)	2003 06 04	(87)	2003 12 31

(30)	10227508.4	2002 06 19	(DE)
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(71)	-65929	50
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(72)	65929	22
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65510	-	3
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-4054	142
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65812	4
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65719	42
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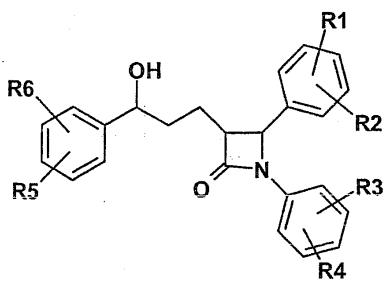
55130	-	-	19
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55270	74
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65239	† 7
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(74)

(54)

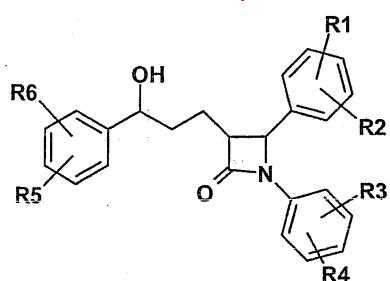


R1, R2, R3, R4, R5 R6

가 [(,) , : Drugs of the Future 2000, 25(7):679-685) 5,756,470]

가 10% , 5%

$$, \quad , \quad 2 - \{ [4 - (4 - \{ 1 - (4 -) - 3 - [3 - (4 - R1 - R6) - 3 - O - (CH_2)_{1-10} - COOH, (C_1 - C_6) - 2 - \})] \} - COOH$$



H, F, Cl, Br, I, CF₃, NO₂, N₃, CN, COOH, COO(C₁-C₆)-, CONH₂, CONH(C₁-C₆)-, CON[(C₁-C₆)-]₂, (C₁-C₆)-, (C₂-C₆)-, (C₂-C₆)-, O-(C₁-C₆)-, (C₁-C₆)-, C(=NH)(NH₂), PO₃H₂, SO₃H, SO₂-NH₂, SO₂NH(C₁-C₆)-, SO₂N[(C₁-C₆)-]₂, S-(C₁-C₆)-, S-(CH₂)_n-, S-O-(C₁-C₆)-, SO-(CH₂)_n-, SO₂-(C₁-C₆)-, SO₂-(CH₂)_n- (F, Cl, Br, OH, CF₃, NO₂, CN, OCF₃, O-(C₁-C₆)-, (C₁-C₆)-, NH₂, 2);

NH_2 , $\text{NH}-(\text{C}_1-\text{C}_6)-$, $\text{N}((\text{C}_1-\text{C}_6)-)$, $\text{NH}(\text{C}_1-\text{C}_7)-$, $\text{O}-(\text{CH}_2)_n-$ (, n = 0-6 F, Cl, Br, I, OH, CF_3 , NO_2 , CN, OCF_3 , $\text{O}-(\text{C}_1-\text{C}_6)-$, $(\text{C}_1-\text{C}_6)-$, NH_2 , $\text{NH}(\text{C}_1-\text{C}_6)-$, $\text{NH}((\text{C}_1-\text{C}_6)-)$, SO_2-CH_3 , COOH, $\text{COO}-(\text{C}_1-\text{C}_6)-$, CONH₂) ;

$$\text{((LAG)}_n\text{-(CH}_2\text{)}_{1-10}\text{-SO}_3\text{H, -(CH}_2\text{)}_{0-10}\text{-P(O)(OH)}_2\text{, (CH}_2\text{)}_{0-10}\text{-O-P(O)(OH)}_2\text{ - (CH}_2\text{)}$$

$$\text{0-10-COOH } n \quad 1 \quad 5 \quad ;$$

, , R1 R6 (C₀-C₃₀)- -(LAG)_n[, n 1 5
- S(O)_n-(, n 0 2), -O-, -(C=O)-, -(C=S)-, -C
H=CH-, -C C-, -N((C₁-C₆)-)-, -N(), -N((C₁-C₆)- H)- -NH-] . -)-, -N(CO-(CH₂)₁₋₁₀-COO

$$-\text{O}-, -(\text{C}=\text{O})-, -\text{N}((\text{C}_1-\text{C}_6)-\text{C}_0-\text{C}_{30})-, -\text{N}(\text{CO}-(\text{CH}_2)_{1-10}-\text{COOH})-, \text{NH}-$$

]

$$-\text{C}(=\text{O})-\text{R}_1 - \text{N}(\text{CH}_3)_2 - \text{NH}-\text{C}(\text{O})-\text{R}_3 - \text{C}_0 - \text{C}_{30} - \text{C}(\text{O})-\text{R}_3 - \text{N}(\text{CH}_3)_2 - \text{NH}-\text{C}(\text{O})-\text{R}_1 - \text{O}-$$

$$\begin{array}{ccccccccc}
 R1 & R3 & \text{가} - (\text{CH}_2)_{0-1} - Y - W - (\text{C}_0 - \underset{Y}{\text{C}}_{25}) - & & - Y' - W' - (\text{LAG})[& & \\
 & & & & & \text{NH}, \text{NCH}_3, \text{C=O}, \text{O}, & & \\
 (\text{S(O)}_n(\text{O})_0(\text{O})_2)_n, & , & Y' & W' & & \text{NH}, \text{NCH}_3, \text{C=O}, \text{O}, & & \text{S(O)}_n(\text{O})_0(\text{O})_2)_n \\
 & & & & Y - W & Y' - W' &] & |
 \end{array}$$

가 , LAG가 |

가

가

가

, , , , , kg 0.1mg
100mg(0.1mg 50mg) , 0.1 10mg/kg .
0.01 100mg, 0.02 50mg , ,

가 % 95 % , , , 0.05 가

1

(,)

가

가

가

가

1

(

가

()

가

[: Rote Liste 2001, Chapter 12]

HMB 1064 CLR 1

: WO 98/08871]

[...] : WO 87/26265 WO 89/038611

GLP-1

3

• PPAR • PXR

ATP

HMGCoA

PPAR

, JTT-501, GI 262570

, GW 9578, GW 7647 PPAR

PPAR

, GW 1536, AVE 8042, AVE 8134, AVE 0847

MTP

, HMR 1453

, Bay 194789 CETP

, HMR1171, HMR1586 LDL

ACAT

, OPC-14117

, NO-1886

, SB-204990 ATP

, BMS-188494

, CI-1027

: WO 97/41097] [Dr. Reddy's Research Foundation] 5-[[4-[(3,4-[
-3- -4- -2-]]]-2,4-

ATP-

가
TNF , CRF | CART , NPY , MC3 MC4 , H3 ,
K , , CRF BP , , , 3- , MCH() , CC
(, ,), / , TRH , , 2 3 , , , DA

가

가

가

가

가

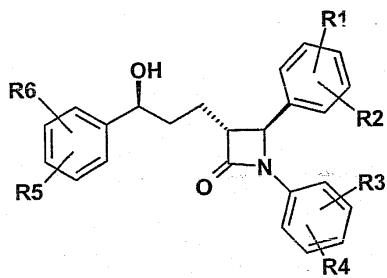
가

aromax , | , , , , Caromax , C
, Caromax | Caromax , , , , , LDL

가

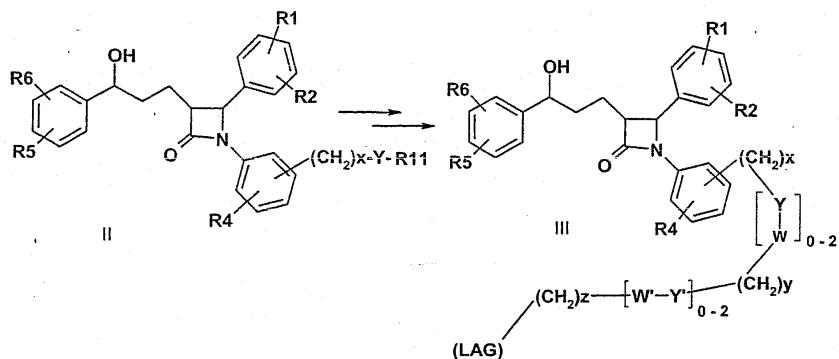
가

가



t-^{2-(3,5-}
Fmoc) (BOC)) 2 (Ddz) (Trt) 9-
 (Z) , 3M (

가 , I



Y S, O, (C=O), (C=S), CH=CH, C-C, N((C₁-C₆)-), N(), N((C₁-C₆)- - -), N(CO-(CH₂)₁₋₁₀-COOH) NH ;

R11 H Y가 (C=O) (C=S) OH ;

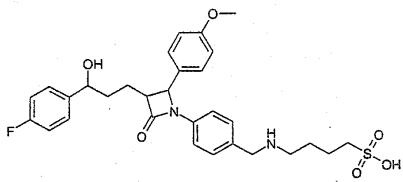
W, Y' W' Y -S(O)_n- (, n 0 2), -O-, -(C=O)-, -(C=S)-, -CH=CH-, -C-C-, -N((C₁-C₆)-), N(), N((C₁-C₆)- - -), N(CO-(CH₂)₁₋₁₀-COOH) NH- ;

x, y z 0 10

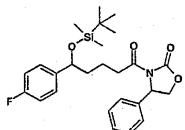
II , -(CH₂)_x-Y-R11 2

I , II , 가
() , , (LAG)

4-{4-[3-[3-(4-
-1- (6): -3-]-2-(4-)-4- -1-] } }



a) $3 - [5 - (3 -) - 5 - (4 -) -] - 4 - - - - 2 - (1)$



$$b) 4 - [5 - (3 - \quad \quad \quad)] \quad (2): \quad \quad \quad) - 5 - (4 - \quad \quad \quad) - 1 - (4 - \quad \quad \quad) - 2 - (2 - \quad \quad \quad - 4 - \quad \quad \quad - 3 -$$

3-[5-(3- 350ml -10) -5-(4- 19.8ml 8.52ml) - [4-)] 가 -30 -40 300ml] -4-)] 가 44ml 가 2N 200ml, 20%	-2- 10.14g 30 -10	16.2g 가 2
-30	-40	가	2N	200ml, 20%	
07.93 N ₂)	n- / 3/1 (2)(C ₄₁ H ₄₆ FN ₃ O ₅ Si)) -5-(4-)-1-(4-) -2-(2- ; MS(ESI): 590.51(MH ⁺ - C ₇ H ₅	-4-	7	

$$c) 4 - [3 - [3 - (3 - \dots)] - 3 - (4 - \dots)] - 2 - (4 - \dots) - 4 - \dots - 1 - \dots$$

4-[5-(3-
)-3-(4-
)-1-(4-
)-2-(2-
-4-
-3-
)
]
18.6ml
13.2g
3 -
380ml
N,O-
(
)
1M
1.86ml
가
2
. .
10ml
가
/
50/1
.
. ,
544.75
4-[3-[3-
)-3-(4-
)]-2-(4-
)-4-
-1-]
(3-
(C₃₂H₃₇FN₂O₃Si)
; MS(ESI): 545.56(M+H⁺).

$$d) 4 - [3 - [3 - [4 -) - 3 -] - 2 - (4 -) - 4 -] - 1 -] \quad (4)$$

4-[3-(3-
3.5g
3.5g
1M
4.82ml
8.03ml
가
가
n- /
430.48
(4)(C₂₆H₂₃FN₂O₃)
-]
)-3-(4-
65ml
가
3
2
가
2/1
)-3-
)]-2-(4-
0.74ml
)-4-
-1-]-
; MS(ESI): 431.24(M+H⁺).
-1-]

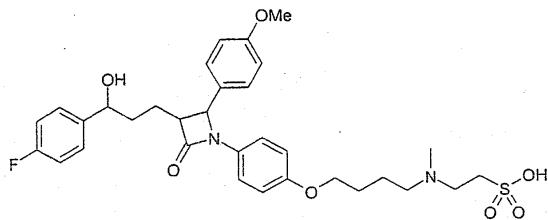
$$e) \quad 1 - (4 -) - 3 - [3 - (4 -) - 3 -] - 4 - (4 -) - - 2 - (5) :$$

4-[3-(3-(4-
90ml)-3-]-2-(4-
10ml)-4- 가 -1-]- 60 1.22g
8 / / 10/1/0.1
- (4-)- 434.51 1-(4- FN 2 O 3) -3-[3-(4-)-3-]-4-
- (4-)- 2- (5)(C 26 H 27 FN 2 O 3) ; MS(ESI):418.2(MH + -NH 3).

f) 4-{4-[3-[3-(4-
-1- (6):)-3-]-2-(4-)-4- -1-] }
12 , 87mg 3ml 1,4- 40μℓ 가
85/15 +10%) 570.69 4-{4-[3-[3-(4-
] -2-(4-)-4- -1-] } -1- (6)(C 30 H 35 FN 2 O 6 S)
; MS(ESI):553.28(MH + -H 2 O).

II

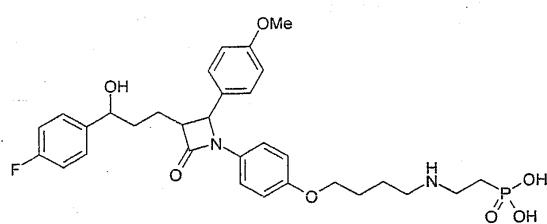
2-[4-{4-[3-[3-(4-
)] }-3-]-2-(4-)-4- -1-] }
(8):



3-[3-(4-
(7) 130mg)-3- 6ml 2ml N-)]-4-(4- 120mg) 60mg -2-
24 50 (50mg) . C 32 H 39 FN 2 O 7 S ESIMS m/
z:614(M +)

III

[2-(4-{4-[3-[3-(4-
)] }-3-]-2-(4-)-4- -1-] }
(9):



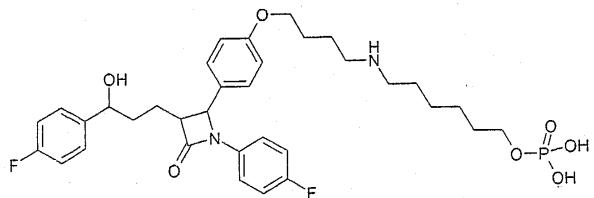
3-[3-(4-
(7) 200mg)-3- 6ml 3ml 1-]-4-(4- 165mg -2-
247mg 가 . 8 90 (47mg)

C 31 H 38 FN 2 O 7 P ESIMS m/z:600(M +).

IV

-{6-[4-(4-{1-(4-)-3-[3-(4-)-3-]-4-

-2- })] } (10):

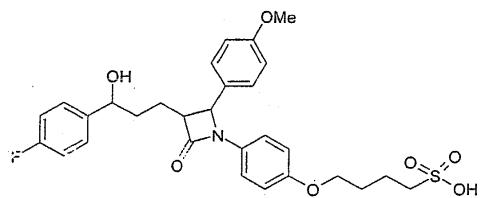


1 - (4 -
- 2 -) - 3 - [3 - (4 -
) 130mg 115mg 107mg 가 6ml 70
- 3 -
] - 4 - [4 - (2 -
1.5ml 6 -
- 1 -

C₃₄H₄₃F₂N₂O₇P ESIMS m/z:660(M⁺)

V

4 - { 4 - [3 - [3 - (4 -
} - 1 - (12):
- 3 -] - 2 - (4 -) - 4 - - 1 -]

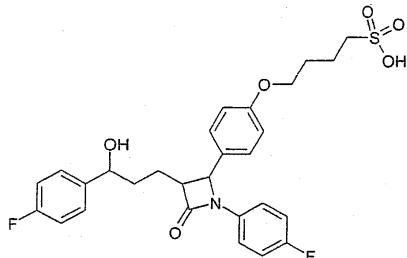


3 - [3 - (4 -
(11) 160mg) - 3 - 4ml] - 1 - (4 -
- 4 - (4 -
210mg 1,4 -) 42mg - 2 -
1 2N 2
SiO₂ (/ = 5/1)
(72mg) 가

C₂₉H₃₂FNO₇S ESIMS m/z:557(M⁺)

VI

4 - (4 - { 1 - (4 -
- 1 - (13):
- 3 - [3 - (4 -) - 3 -] - 4 - - 2 - } -)

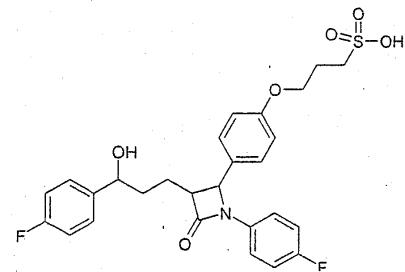


1 - (4 -
0mg) - 3 - [3 - (4 - 6ml) - 3 -] - 4 - (4 -
337mg 1,4 -) 69μl - 2 - (7) 25
(/ = 5/1) 10g SiO₂
가 (131mg)

C₂₈H₂₉F₂NO₆S ESIMS m/z:546(M⁺)

VII

3-(4-{1-(4-
-1-
(14):})-3-[3-(4-

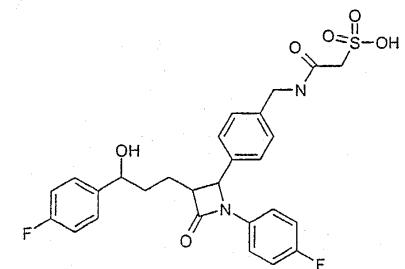


1-(4-
0mg)-3-[3-(4-
6ml)-3-
] -4-(4-
337mg 1,3-
59μl -2- (7) 25
(/ = 5/1) 10g 가
SiO₂
(250mg)

C₂₇H₂₇F₂NO₆S ESIMS m/z:532(M⁺)

VIII

(4-{1-(4-
(18):})-3-[3-(4-



a) 4-[5-(4-
]- (15):)-1-(4-
)-5-] -4- -2-(2- -4- -3-)-

, 3-[5-(4- 4-[4- 6.4ml 0.8ml 35ml 15ml 가 가 10ml 가)-5-)- 가 가 1 -25 1 653.81] -4- 3.9g 4.05ml 30 -30 1 / (C ₃₇ H ₃₇ F ₂ N ₃ O ₄ Si) ; M	-2- 2.5g -10 -25 20% 30ml 2ml 가 30
--	--	--	---

S(ESI): 654.3(M+H⁺), 582.2(M+H⁺-Si(CH₃)₃).

b) {1-(4-)-3-[3-(4-)-3-] -4- -2- }- (16):

4-[5-(4-
]- (15) 2g)-1-(4-
-3-)-5- 20ml -2-(2- -4- -3- 3)-

100mg
 1.3ml
 0.2ml
 1
 40
 가
 30
 .
 /2N
 = 10:1
 가
 ,
 20ml
 1
 가
 30
 1
 .
 :1)
 418.45
 (C₂₅H₂₀F₂N₂O₂)
 (SiO₂, CH₂Cl₂/ = 100
 ; MS(DCI): 419(M+H⁺).

c) 4-(4-
):
)-1-(4-
)-3-[3-(4-
)-3-
]-
 -2- (17)

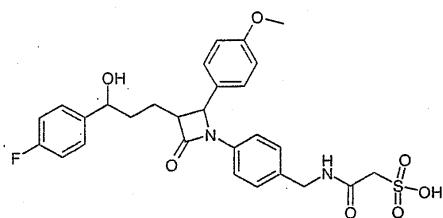
{1-(4-
 200mg
 20ml
)-3-[3-(4-
)-3-
]-4-
 -2- }-
 25
 30
 (16)
 H₂Cl₂/ NH₃ = 100:10:1)
 O₂) ; MS(DCI): 423(M+H⁺), 405(M+H⁺-H₂O).

d) (4-{1-(4-
)-3-[3-(4-
)-3-
]-4-
 -2- }-
 (18):

] -
 40mg,
 1ml
 -2- (17) 120mg,
 4-(4-
 110μl,
)-1-(4-
 48μl
 76mg
 HPLC(Knauer Eurospher-100-10-C18,
)=80/20->10/90)
 (C₂₇H₂₆F₂N₂O₆S₁)
 가
 2ml
 (0.1%
 12
 ; MS(ESI): 527.10(M+H⁺-H₂O).
 544.58

IX

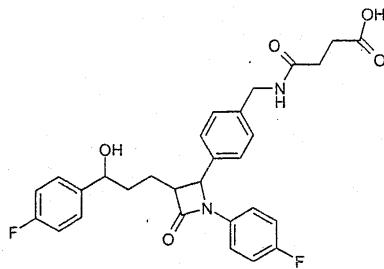
{4-[3-[3-(4-
 (19):
)-3-
]-2-(4-
)-4-
 -1-]- }-



)
 55μl,
 1ml
 -2- (5) 60mg
 1-(4-
 38mg
)-3-[3-(4-
 1ml
)-3-
 20mg,
 HPLC(Knauer Eurospher-100-10-C18,
)=80/20->10/90)
 ; MS(ESI): 539.05(M+H⁺-H₂O).
 556.61
)/
 (C₂₈H₂₉F₁N₂O₇S₁)
 (0.1%

X

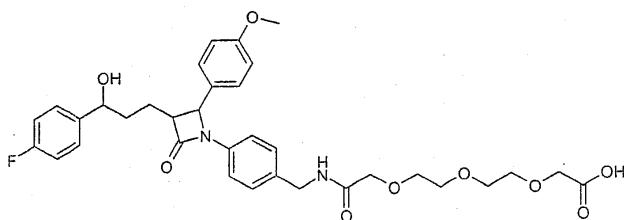
N-(4-{1-(4-
 (20):
)-3-[3-(4-
)-3-
]-4-
 -2- }-)



] -2- (17) 100mg,
92 μ l, 2ml
4-(4-
HPLC(Knauer Eurospher-100-10-C18, (0.1%
)=80/20->10/90)
; MS(ESI):545.19(M+Na⁺).
6 S 1))-1-(4-
33 μ l 80mg
가
)-3-[3-(4-
2ml 12
522.55
)/
(C₂₇H₂₆F₂N₂O₂)
(0.1%

XI

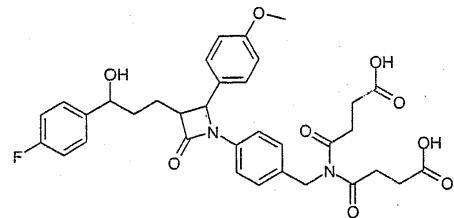
{2-[2-({4-[3-[3-(4-
)]})-3-
(21):)-2-(4-
]-4-]



)
327mg, -2- (5) 64mg,
1ml 1-(4-
57 μ l, 20 μ l
HPLC(Knauer Eurospher-100-10-C18, (0.1%
)=80/20->10/90)
; MS(ESI):639.27(M+H⁺).
)/
(C₃₄H₃₉F₁N₂O₉)
)-3-[3-(4-
2ml 3,6,9-
가
)-4-(4-
12
638.70

XII

4-((3-
-1-))-4- {4-[3-[3-(4-
(22):)-3-
]-2-(4-
]-4-]



-2- (5) 70mg,
63 μ l, 1ml
1-(4-
HPLC(Knauer Eurospher-100-10-C18, (0.1%
)=80/20->10/90)
; MS(ESI-neg):633.22(M-H⁺).
%
O₉))-3-[3-
55mg
가
)-3-
2ml
634.4
)/
(C₃₄H₃₅F₁N₂O₉)
)-4-(4-
190mg,
12
(0.1

XIII

11-{4-[3-[3-(4-(
(23):

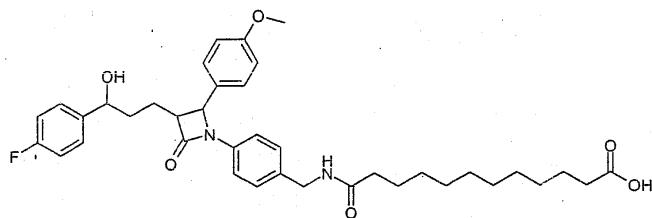
)-3-

]-2-(4-

)-4-

-1-]

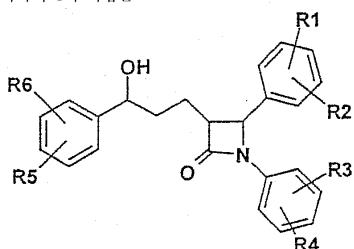
}



) 1ml 1-(4-
-2- (5) 70mg,
63μl,
(0.1%
47 F 1 N 2 O 6)
1- (4-
23μl
HPLC(Knauer Eurospher-100-10-C18,
)=80/20->10/90)
; MS(ESI):647.35(M+H⁺).

) -3- [3-(4-
55mg
가
2ml
) -3-
12
] -4-(4-
371mg,
12
646.81
(C₃₈H₆₄O₆)/

[1]
화학식 1의 화합물



실시 예	R1, R2	R3, R4	R5, R6	유리 또는 염기 산의 분자량 (계산치)	분자량 (설측치)
XIV		파라 -F, H	파라 -F, H	531.58	532.4 (MH ⁺)
XV		파라 -F, H	파라 -F, H	502.54	503.3 (MH ⁺)
XVI	파라 -F, H		파라 -F, H	514.58	515.4 (MH ⁺)
XVII	파라 -O-CH ₃ , H		파라 -F, H	599.68	599.21 (M ⁺)
XVIII	파라 -O-CH ₃ , H		파라 -F, H	739.95	740.42 (MH ⁺)
XIX	파라 -O-CH ₃ , H		파라 -F, H	599.60	600.34 (MH ⁺)
XX	파라 -O-CH ₃ , H		파라 -F, H	534.59	534.4 (MH ⁺)
XXI		파라 -F, H	파라 -F, H	578.66	561.25 (MH ⁺ - H ₂ O)
XXII		파라 -F, H	파라 -F, H	634.77	617.31 (MH ⁺ - H ₂ O)
XXIII	파라 -F, H		파라 -F, H	585.65	567.70 (MH ⁺ - H ₂ O)
XXIV	파라 -O-CH ₃ , H		파라 -F, H	557.64	557.19 (M ⁺)

XXV		파라 -F, H	-F, H	660.70	660.28 (M ⁺)
XXVI	파라 -O-CH ₃ , H		-F, H	600.62	600.24 (M ⁺)
XXVII	파라 -O-CH ₃ , H		-F, H	614.73	597.32 (M-H ₂ O) ⁺¹
XXVIII		파라 -F, H	-F, H	559.64	560.4 (MH ⁺)
XXIX		파라 -F, H	-F, H	545.61	546.3 (MH ⁺)
XXX		파라 -F, H	-F, H	727.91	710.23 (MH ⁺ -H ₂ O)
XXXI	파라 -O-CH ₃ , H		파라 -F, H	753.93	752.32 (M-H ⁺); 네가티브 방식으로 측정됨
XXXII		파라 -F, H	파라 -F, H	573.62	572.09 (M-H ⁺); 네가티브 방식으로 측정됨
XXXIII		파라 -F, H	파라 -F, H	587.67	586.18 (M-H ⁺); 네가티브 방식으로 측정됨

,

+ 3 H-

n 4 6 NMRI ,
(Altromin, Lage(Lippe)) (14 C -)

가 , (Intralipid 20 14 C - , Pharmacia - Upjohn) 24
³ H - TCA() (, 1 μ Ci / 5 μ Ci /).

: 0.25ml/ Intralipid 20(Pharmacia - Upjohn)(0.1mg 14 C -
0.25 μ Ci)

0.5% ()/5% (BASF, Ludwigshafen)

0.5ml/ (14 C - Intralipid)

24 : 14 C - ³ H - (TCA) 24

/ 14 C -

가

(O_2) : 307(H^3 : Packard) : (H^3-H_2O) C^{14} -C).
 H^3 -ED₂₀₀ TCA
 H^3 - C^{14}
 O_2 가 .

2 가

¹⁴ C- 가 . ED 50 (50%)

ED₅₀

ED₅₀() [mg/]

| 1.0

IV 0.3

XIII <0.1

xviii o

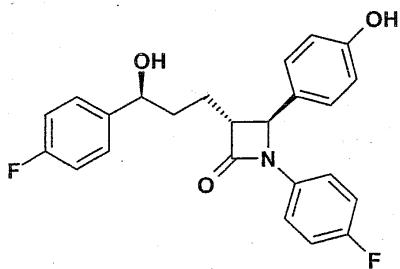
xxi 0 1

xxii 0 1

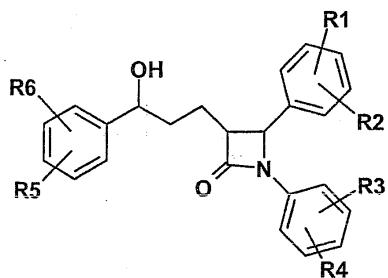
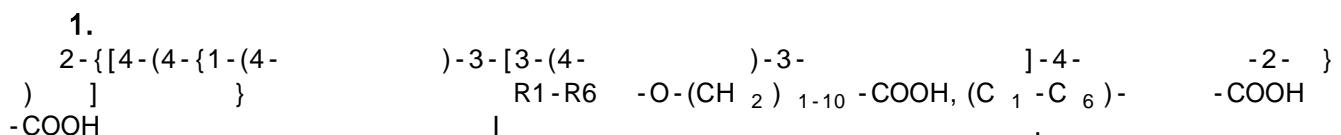
xxv 0 3

xxviii 0 3

| (A.R. Hilgers et al., Caco-2 cell monolayers as a model for drug transport across the intestinal mucosa, Pharm. Res. 1990, 7, 902) .



(57)



H, F, Cl, Br, I, CF₃, NO₂, N₃, CN, COOH, COO(C₁-C₆)-, CONH₂, CONH(C₁-C₆)-, CON[(C₁-C₆)-]₂, (C₁-C₆)-, (C₂-C₆)-, (C₂-C₆)-, O-(C₁-C₆)-, (C₁-C₆)-, C(=NH)(NH₂), PO₃H₂, SO₃H, SO₂-NH₂, SO₂NH(C₁-C₆)-, SO₂N[(C₁-C₆)-]₂, S-(C₁-C₆)-, S-(CH₂)_n-S-O-(C₁-C₆)-, SO-(CH₂)_n-SO₂-(C₁-C₆)-, SO₂-(CH₂)_n-S-, n=0, 6, F, Cl, Br, OH, CF₃, NO₂, CN, OCF₃, O-(C₁-C₆)-, (C₁-C₆)-, NH₂, 2);

NH_2 , $\text{NH}-(\text{C}_1-\text{C}_6)-$, $\text{N}((\text{C}_1-\text{C}_6)-)$, $\text{NH}(\text{C}_1-\text{C}_7)-$, $\text{O}-(\text{CH}_2)_n-$ (
 $n=0, 6$)
 $\text{F}, \text{Cl}, \text{Br}, \text{I}, \text{OH}, \text{CF}_3, \text{NO}_2, \text{CN}, \text{OCF}_3, \text{O}-(\text{C}_1-\text{C}_6)-$, $(\text{C}_1-\text{C}_6)-$, NH_2 , $\text{NH}(\text{C}_1-\text{C}_6)-$, $\text{NH}((\text{C}_1-\text{C}_6)-)$, SO_2-CH_3 , COOH , $\text{COO}-(\text{C}_1-\text{C}_6)-$, CONH_2);

$$\text{((LAG)}_{n-10}\text{-COOH)}_{0-10}\text{-(CH}_2\text{)}_{1-10}\text{-SO}_3\text{H, -(CH}_2\text{)}_{0-10}\text{-P(O)(OH)}_2\text{, }(\text{CH}_2\text{)}_{0-10}\text{-O-P(O)(OH)}_2\text{, -(CH}_2\text{)}$$

, , R1 R6 $(C_0 - C_{30}) - S(O)_n - (\dots, n_0)$ - (LAG)_n [, n 1 5 - (C=O) -, -(C=S) -, -C

H=CH-, -C C-, -N((C₁-C₆)-) -, -N(), -N((C₁-C₆)-) -, -N(CO-(CH₂)₁₋₁₀-COO
H)- -NH-] .

2.

1 ,

2-{[4-(4-{1-(4-
)}]-3-[3-(4-
R1-R6)-O-(CH₂)₁₋₁₀-COOH, (C₁-C₆)-] -2- }
-COOH ,

R2, R4, R5 R6 , H, F, Cl, Br, I, CF₃, NO₂, N₃, CN, COOH, COO(C₁-C₆)-, CO
NH₂, CONH(C₁-C₆)-, CON[(C₁-C₆)-] ₂, (C₁-C₆)-, (C₂-C₆)-, (C₂-C₆); C(=NH)
(NH₂), PO₃H₂, SO₃H, SO₂-NH₂, SO₂NH(C₁-C₆)-, SO₂N[(C₁-C₆)-] ₂, S-(C₁
-C₆)-, S-(CH₂)_n-, SO-(C₁-C₆)-, SO-(CH₂)_n-, SO₂-(C₁-C₆)- SO
SO₂-(CH₂)_n- (, n 0 6 F, Cl, Br, OH, CF₃, NO₂, CN, OCF₃, O-(C₁-C₆)-, (C₁-C₆)-
NH₂ NH₂);

NH₂, NH-(C₁-C₆)-, N((C₁-C₆)-) ₂, NH(C₁-C₇)-, O-(CH₂)_n- (, n 0 6
F, Cl, Br, I, OH, CF₃, NO₂, CN, OCF₃, O-(C₁-C₆)-, (C₁-C₆)-, NH₂, NH(C₁-C₆)-, NH((C₁-C₆)-) ₂, SO₂-CH₃, COOH, COO-(C₁-C₆)-
CONH₂);

R1 R3 (C₀-C₃₀)- -(LAG)[, -O-,
-(C=O)-, -N(CH₃)- -NH-],

H, F, Cl, Br, I, CF₃, NO₂, N₃, CN, COOH, COO(C₁-C₆)-, CONH₂, CONH(C₁-C₆)-, CON
[(C₁-C₆)-] ₂, (C₁-C₆)-, (C₂-C₆)-, (C₂-C₆)-, O-(C₁-C₆)- (,
); C(=NH)(NH₂), PO₃H₂, SO₃H, SO₂-NH₂, SO₂NH(C₁-C₆)-, SO₂N[(C₁-C₆)-] ₂, S-(C₁-C₆)-, S-(CH₂)_n- , S
O-(C₁-C₆)-, SO-(CH₂)_n-, SO₂-(C₁-C₆)- SO₂-(CH₂)_n- (, n 0 6
F, Cl, Br, OH, CF₃, NO₂, CN, OCF₃, O-(C₁-C₆)-, (C₁-C₆)-
NH₂ NH₂);

NH₂, NH-(C₁-C₆)-, N((C₁-C₆)-) ₂, NH(C₁-C₇)-, O-(CH₂)_n- (, n 0 6
F, Cl, Br, I, OH, CF₃, NO₂, CN, OCF₃, O-(C₁-C₆)-, (C₁-C₆)-, NH₂, NH(C₁-C₆)-, NH((C₁-C₆)-) ₂, SO₂-CH₃, COOH, COO-(C₁-C₆)-
CONH₂);

(LAG)_n -(CH₂)₁₋₁₀-SO₃H, -(CH₂)₀₋₁₀-P(O)(OH)₂, (CH₂)₀₋₁₀-O-P(O)(OH)₂ -(CH₂)
0-10 -COOH ;

, R1 R3 (C₀-C₃₀)- -(LAG)[, -I
-O-, -(C=O)-, -N((CH₃)- -NH-],

3.

1 2 ,

2-{[4-(4-{1-(4-
)}]-3-[3-(4-
R1-R6)-O-(CH₂)₁₋₁₀-COOH, (C₁-C₆)-] -2- }
-COOH ,

R2, R4, R5 R6 , H, F, Cl, Br, I, CF₃, NO₂, N₃, CN, COOH, COO(C₁-C₆)-, CO
NH₂, CONH(C₁-C₆)-, CON[(C₁-C₆)-] ₂, (C₁-C₆)-, (C₂-C₆)-, (C₂-C₆); C(=NH)
(NH₂), PO₃H₂, SO₃H, SO₂-NH₂, SO₂NH(C₁-C₆)-, SO₂N[(C₁-C₆)-] ₂, S-(C₁
-C₆)-, S-(CH₂)_n-, SO-(C₁-C₆)-, SO-(CH₂)_n-, SO₂-(C₁-C₆)- SO

$$\text{C}_1\text{-}(\text{CH}_2)_n\text{-}\left(\text{C}_1\text{-}\text{C}_6\right)_m\text{-NH}_2 \quad \text{F, Cl, Br, OH, CF}_3, \text{NO}_2, \text{CN, OCF}_3, \text{O}-$$

);

NH_2 , $\text{NH}-(\text{C}_1-\text{C}_6)-$, $\text{N}((\text{C}_1-\text{C}_6)-)$, $\text{NH}(\text{C}_1-\text{C}_7)-$, $\text{O}-(\text{CH}_2)_n-$ (
 $\text{F}, \text{Cl}, \text{Br}, \text{I}, \text{OH}, \text{CF}_3, \text{NO}_2, \text{CN}, \text{OCF}_3, \text{O}-(\text{C}_1-\text{C}_6)-$, $(\text{C}_1-\text{C}_6)-$, NH_2 , $\text{NH}(\text{C}_1-\text{C}_6)-$, $\text{NH}((\text{C}_1-\text{C}_6)-)$, SO_2-CH_3 , COOH , $\text{COO}-(\text{C}_1-\text{C}_6)-$, CONH_2) ;

R1 R3 - (CH₂)₀₋₁ - Y - W - (C₀ - C₂₅) - - Y' - W' - (LAG)[,
 - O -];

H, F, Cl, Br, I, CF₃, NO₂, N₃, CN, COOH, COO(C₁-C₆)-, CONH₂, CONH(C₁-C₆)-, CO
N[(C₁-C₆)-]₂, (C₁-C₆)-, (C₂-C₆)-, (C₂-C₆)-, O-(C₁-C₆)- ()
, C(=NH)(NH₂), PO₃H₂, SO₃H, SO₂
-NH₂, SO₂NH(C₁-C₆)-, SO₂N[(C₁-C₆)-]₂, S-(C₁-C₆)-, S-(CH₂)_n- , S
O-(C₁-C₆)-, SO-(CH₂)_n-, SO₂-(C₁-C₆)-, SO₂-(CH₂)_n- (), n = 0
6 F, Cl, Br, OH, CF₃, NO₂, CN, OCF₃, O-(C₁-C₆)-, (C₁-C₆)-
NH₂ 2);

NH_2 , $\text{NH}-(\text{C}_1-\text{C}_6)-$, $\text{N}((\text{C}_1-\text{C}_6)-)$, $\text{NH}(\text{C}_1-\text{C}_7)-$, $\text{O}-(\text{CH}_2)_n-$, $(\text{C}_1-\text{C}_6)-$, NH_2 , $\text{NH}(\text{C}_1-\text{C}_6)-$, $\text{NH}((\text{C}_1-\text{C}_6)-)$, SO_2-CH_3 , COOH , $\text{COO}-(\text{C}_1-\text{C}_6)-$, CONH_2) ;

Y, W, Y' W'가 NH, NCH₃, C=O, O, S(O)_n(, n = 0 ~ 2) ;

$Y - W$ $Y' - W'$

(LAG)가 -(CH₂)₁₋₁₀-SO₃H, -(CH₂)₀₋₁₀-P(O)(OH)₂, (CH₂)₀₋₁₀-O-P(O)(OH)₂ -(CH₂)₀₋₁₀-COOH ;

, R1 R3 $\text{--} \text{C}_0 \text{---} \text{CH}_2 \text{---} \text{O} \text{---} \text{Y} \text{---} \text{W} \text{---} \text{C}_0 \text{---} \text{C}_{25} \text{---} \text{Y}' \text{---} \text{W}' \text{---} (\text{LAG})[$

4.

5.

1 4

6.

1 4 가

7.

6 , 가

8.

6 7 , 가
 , PPAR , PPAR , PPAR / , HMGCoA
 , CETP , , LDL , ACAT , MTP
 , ATP , , ,
 , , , , , , , ATP
 , CRF , CRF BP , , CART , NPY , MC4 , , H3 , TNF
 , - , , , 3 , MSH() , CCK
 , , , TRH , , 5HT , , DA

(,), / , PPAR , RXR TR -

9.

1 4

,

10.

, 1 4

11.

1 4

12.

1 4

13.

1 4

14.

1 4